

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 34

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte JAMES B. MITCHELL, AMRAN SAMUNI,
WILLIAM G. DEGRAFF and STEPHEN HAHN

Appeal No. 2001-0942
Application No. 08/473,960

ON BRIEF

Before WINTERS, WILLIAM F. SMITH and LORIN, Administrative Patent Judges.

LORIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 17 and 19-21, all the claims pending in the application.¹

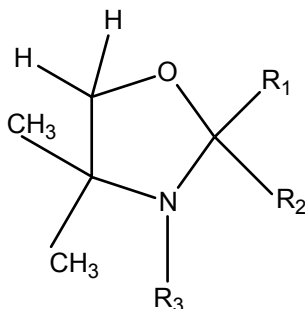
¹ Pursuant to 35 U.S.C. § 6(b), we review the adverse decision of the examiner. In doing so, we have considered the record, including:

- Final Rejection (paper no. 26);
- Advisory Action (paper no. 28);
- Brief (paper no. 30);
- Examiner's Answer (paper no. 31);
- Reply Brief (paper no. 32); and,
- Second Examiner's Answer (paper no. 33).

Claim 17 is illustrative of the claims on appeal and reads as follows:

17. A method for treating or preventing damage to normal cells, tissues, or organs in a mammal that has been exposed to ionizing radiation, comprising administering to said mammal, after exposure to ionizing radiation, a composition comprising an anti-radiation damage effective amount of a compound selected from the group consisting of:

- (i) a metal-independent nitroxide of formula $R_3-N(R_4)(R_5)$,
wherein R_3 is $-O^\cdot$, $-OH$, or a physiologically acceptable salt thereof having antioxidant activity,
and R_4 and R_5 , together with the nitrogen atom to which they are bonded, form a 5- or 6-membered heterocyclic group, which, in addition to said nitrogen atom, comprises one or more heteroatoms selected from the group consisting of oxygen, nitrogen and sulfur, or R_4 and R_5 , separately, each comprise a substituted or unsubstituted 5- or 6-membered cyclic group or a substituted or unsubstituted 5- or 6-membered heterocyclic group, which comprises one or more heteroatoms selected from the group consisting of oxygen, nitrogen and sulfur,
- (ii) an oxazolidine compound, which is capable of forming an oxazolidine-1-oxyl, wherein said oxazolidine compound is of formula:



wherein R_1 is CH_3 and R_2 is $-C_2H_5$, $-C_3H_7$, $-C_4H_9$, $-C_5H_{11}$, $-C_6H_{13}$, $-CH_2CH(CH_3)_2$, $-CHCH_3C_2H_5$, or $-(CH_2)_7CH_3$, and R_3 is $-O^\cdot$, $-OH$, or a physiologically acceptable salt thereof having antioxidant activity, or

wherein R_1 and R_2 , together, form spirocyclopentane, spirocyclohexane, spirocycloheptane, spirocyclooctane, 5-cholestane or norbornane.

The references relied upon by the examiner are:

Mitchell et al. (Mitchell) 5,462,946 Oct. 31, 1995

Samuni et al. (Samuni), "A Novel Metal-free Low Molecular Weight Superoxide Dismutase Mimic," The Journal of Biological Chemistry, Vol. 263, No. 34, (Chemical Abstracts. AN 1989: 3623) pp. 17921-17924, 1988.

Nilsson et al. (Nilsson I), "The Hydroxylamine OXANOH and Its Reaction Product, The Nitroxide OXANO⁻, Act As Complementary Inhibitors of Lipid Peroxidation," Chem.-Biol. Interactions, Vol. 74, pp. 325-342, (Chemical Abstracts. AN 1990: 511000)(1990).

Nilsson et al. (Nilsson II), "Inhibition of Lipid Peroxidation by Spin Labels," The Journal of Biological Chemistry, Vol. 264, No. 19, pp. 11131-11135, (Chemical Abstracts. AN 1098: 511099)(1989).

Bose et al. (Bose), "UV-A induced lipid peroxidation in liposomal membrane," Radiat Environ Biophys, pp. 59-65, (Chemical Abstracts. AN 1989: 131390)(1989).

Example 6 of the specification.

The rejections are:

Claims 17 and 19-21 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 13 of Mitchell.

Claims 17 and 19-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Samuni in view of Nilsson I or Nilsson II, and Bose and "the admitted prior art set forth in the instant specification, especially example 6."

DISCUSSION

Obviousness-Type Double Patenting

Claims 17 and 19-21 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 13 of Mitchell.

The claims stand or fall together (Brief, p. 4). Accordingly, we will focus on sole independent claim 17.

The issue is whether claim 17 describes an obvious variation of Mitchell patent claim 13. In re Vogel, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970). If so, then the rejection would be proper and could only be overcome by filing a terminal disclaimer. If not, then instant claim 17 would be patentably distinct from Mitchell patent claim 13. In re Goodman, 11 F.3d 1046, 1052, 29 USPQ2d 2010, 2015 (Fed. Cir. 1993).

The crux of the inquiry lies in a comparison of Mitchell patent claim 13 and instant claim 17. In re Borah, 354 F.2d 1009, 1017, 148 USPQ 213, 220 (CCPA 1966). See Appendix.

When comparing the claims, we see that Mitchell patent claim 13 is directed to a method of treating the effects of, for example, ionizing radiation, by administering either an oxidized form of either a metal-independent nitroxide or an oxazolidine capable of forming an oxazolidine-1-oxyl “to an organism or biological material susceptible to oxidative stress” (see parent claim 12) “wherein the oxidative stress is due to the formation of free radicals by ... ionizing radiation” (claim 13).

Instant claim 17 is directed to a method of treating damage to cells, tissues, or organs of a mammal by administering either a metal-independent nitroxide or an oxazolidine capable of forming an oxazolidine-1-oxyl “to said mammal, after exposure to ionizing radiation.”

Accordingly, as summarized supra and in appellants’ Brief (pp. 4-7), the two differences are that 1) Mitchell claim 13 administers an oxidized form of the metal-independent nitroxide or oxazolidine while instant claim 17 is directed to administering certain identically illustrated compounds, and 2) Mitchell claim 13 administers the compound to an organism susceptible to oxidative stress due to ionizing radiation while instant claim 17 administers the compound after exposure to ionizing radiation.

Therefore, in assessing whether instant claim 17 is patentably distinct from Mitchell patent claim 13, it is incumbent on examiner to demonstrate that the step of administering one of the recited metal-independent nitroxides or oxazolidines to a mammal after it has been exposed to ionizing radiation is not indicative of the existence of a patentable difference over administering the oxidized form of a metal-independent nitroxide or oxazolidine to a mammal susceptible to oxidative stress due to the

formation of free radicals by ionizing radiation. General Foods Corp. v. Studiengesellschaft Kohle mbH, 972 F.2d 1272, 1278-79, 23 USPQ2d 1839, 1844 (Fed. Cir. 1992).

After careful review of examiner's position², we conclude that examiner has demonstrated that instant claim 17 is an obvious variation of Mitchell patent claim 13.

With regard to the difference between administering an oxidized form of the metal-independent nitroxide or oxazolidine (as in Mitchell) and administering one of the metal-independent nitroxide or oxazolidine as instantly claimed, examiner (Examiner's Answer, p. 5) argues that the compounds described in Mitchell claim 13 encompass what is claimed. Appellants (Brief, p. 6) argue that Mitchell's claim is generic and fails to teach the particular formulas for the metal-independent nitroxide and oxazolidine that are illustrated in instant claim 17. Accordingly, as to the compounds to be administered, both parties agree that Mitchell claim 13 is broader in scope than that of instant claim 17. The dispute appears to be whether one of ordinary skill reading the Mitchell claim would have selected the compounds claimed to render prima facie

² The Examiner's Answer, p. 4, states, in its entirety, "[a]lthough the conflicting claims are not identical, they are not patentably distinct from each other because they are drawn to methods overlapping in scope." Examiner goes further in the Final Rejection (Paper no. 23, p. 3): "It would have been obvious to one of ordinary skill in the art to apply the method of patented claims 12-13, selecting ionizing radiation as the source of oxidative stress as per claim 13. One would have been motivated to do so because the claim clearly encompasses this alternative within the broader method. Upon making this selection, and selecting one or more of the metal-independent nitroxides, one would arrive at the method of the instant claims."

obvious using the claimed compounds in view of Mitchell claim 13. To resolve the dispute we have carefully examined Mitchell claim 13. It specifically states that it is directed to “a compound selected from the group consisting of the oxidized form [of the recited compounds]” (see claim 12) and therefore the claim is more narrowly constructed than it first appears. Also, Mitchell claim 13 calls for “an antioxidative stress effective amount of a compound” This also narrows the claim; only those compounds which can provide an antioxidative stress effective amount are included. Furthermore, no evidence has been provided showing that Mitchell claim 13 nevertheless encompasses a large number of species and, if it does so encompass, that many of them are not in fact encompassed by instant claim 17. There is every indication therefore that Mitchell claim 13 covers a select number of compounds. One of ordinary skill in the art would look to those well-known metal-independent nitroxides and oxazolidine compounds which meet the criteria set forth in Mitchell claim 13. In doing so, we are satisfied that one of ordinary skill would select those compounds described in instant claim 17 to similarly treat the effects of oxidative stress.

With regard to the difference between Mitchell claim 13 which administers the compound to an organism susceptible to oxidative stress due to ionizing radiation and instant claim 17 which administers the compound after exposure to ionizing radiation, appellants (Brief, p. 6) submit that the term “susceptible” in Mitchell claim 13 should be interpreted to mean “before exposure to oxidative stress, such as ionizing radiation,” in

contradistinction with what is claimed. Examiner (Examiner's Answer, p. 5), on the other hand, argues that "susceptible" characterizes the organism and is unrelated to the application of the ionizing radiation. To resolve this matter, we turn to the disclosure of the patent³. However, the patent does not define the word "susceptible." Accordingly, we give it the word; that is, to be easily influenced by or affected with. Therefore, Mitchell patent claim 13 is directed to administering the claimed compounds to an organism that is easily influenced by or affected with oxidative stress due to the formation of free radical species by ionizing radiation. This interpretation does not, as appellants argue, limit administering the compounds to organisms untouched by ionizing radiation. It does not follow that an organism influenced by oxidative stress due to the formation of free radical species by ionizing radiation necessarily describes the organism prior to being exposed to ionizing radiation. We have been provided no evidence that an organism exposed to ionizing radiation, whether partially or completely radiated, lacks the capacity to be influenced by oxidative stress. Absent such evidence, the word "susceptible" in Mitchell claim 13 is reasonably interpreted to mean that the organism possesses the ability to be influenced by or affected with oxidative stress due to the formation of free radical species by ionizing radiation, irrespective of when the

³ "We are not here concerned with what one skilled in the art would be aware [of] from reading the claims but with what inventions the claims define," In re Sarett, 327 F.2d 1005, 1013, 140 USPQ 474, 481 (CCPA 1964).

compounds are administered in relation to the application of ionizing radiation.

Accordingly, we are satisfied that one of ordinary skill reading Mitchell claim 13 would be led to administer a compound either before or, as set forth in instant claim 17, after ionizing radiation to similarly treat the effects of oxidative stress.

For the foregoing reasons, the rejection is affirmed.

Obviousness

Claims 17 and 19-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Samuni in view of Nilsson I or Nilsson II, and Bose and “the admitted prior art set forth in the instant specification, especially example 6.”

The claims stand or fall together (Brief, p. 4). Accordingly, we will focus on sole independent claim 17.

Examiner has the burden of establishing a prima facie case of obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Accordingly, examiner has the initial burden of establishing that the claimed invention, as represented by claim 17, would have been obvious over Samuni in view of Nilsson I or Nilsson II, and Bose and the admitted prior art as represented by example 6 of the specification.

As a preliminary matter, we have had to go back to the Office action of February 12, 1999 (Paper No. 23) when the rejection was first raised to get an explanation of the prima facie case of obviousness. Neither the Examiner’s Answer

(see pp. 7-8) nor the Final Rejection provide a grounds of the rejection. All they give are examiner's responses to appellants' arguments. Furthermore, we have been provided only an abstract of the primary reference Samuni. The entire underlying document should have been provided.⁴ Lastly, we have reviewed the Examiner's Answer and there is not a single mention of Bose and the admitted prior art. They have been completely ignored, notwithstanding that they are included as prior art references in the rejection. This raises the question of whether examiner has decided to rely solely on Samuni and the Nilsson references. Be that as it may, rather than remanding the application for clarification, we will review the merits of the rejection. The record is sufficiently complete and the issues adequately addressed to render a decision on the appeal.

According to the examiner (see Paper No. 23), Samuni teaches OXANO, one of the claimed nitroxides, mimics superoxide dismutase, which substance scavenges free radicals, and therefore suggests OXANO is effective against free radicals. Samuni also discloses that either ionizing radiation or xanthine oxidase/xanthine are means for generating the free radicals. Nilsson (I or II) shows OXANO inhibits lipid peroxidation by free radicals in an organism,

⁴ "Citation of an abstract without citation and reliance on the underlying scientific document itself is generally inappropriate where both the abstract and the underlying document are prior art." See Ex parte Jones, 62 USPQ2d 1206, 1208 (Bd. Pat. App. & Inter. 2001) (unpublished).

although the source of the free radicals is a chemical one and not ionizing radiation.

Bose discloses using ultraviolet radiation to generate oxygen-derived free radicals.

Example 6 of the specification indicates that free radical generation by ionizing radiation is expected to cause damage to tissues.

Based on the combination of these disclosures, examiner concludes that the “prior art teaches that OXANO is capable of scavenging oxygen-derive free radicals, ... [and that] [o]ne of ordinary skill in the art would reasonably expect OXANO to do this regardless of the way the free radicals were generated [i.e., by ionizing radiation]” (Paper No. 23, p. 6).

We disagree.

A critical step in the method of instant claim 17 is administering a compound, such as OXANO, “to [a] mammal, after exposure to ionizing radiation.” This is nowhere taught or suggested in any of the cited references. Samuni fails even to teach administering the compound to a mammal or exposing a mammal with ionizing radiation. Nilsson (I or II) fails to mention ionizing radiation. Bose teaches UV radiation which appellants urge and examiner does not dispute is not an ionizing radiation. And the admitted prior art fails to teach or suggest administering any of the claimed compounds. To reach the conclusion that the prior art combination would render obvious this critical step, examiner has had to make a selective combination of the prior art references; that is, examiner has looked namely to Nilsson (I or II) to teach

administration of OXANO to an organism - albeit the free radicals that the OXANO scavenges are generated by chemical means and to Samuni to teach administration of OXANO to scavenge free radicals obtained from the application of either ionizing radiation or a chemical substance.

However, “[t]o establish a prima facie case of obviousness based on a combination of references, there must be a teaching, suggestion or motivation in the prior art to make the specific combination that was made by the applicant.” In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998). Here, examiner has not established that chemical and ionizing radiation means are equivalent means for generating free radicals in organisms such as mammals. Accordingly, it does not suffice to say that Samuni shows administering OXANO to scavenge free radicals obtained by applying either chemical or ionizing radiation means and Nilsson teaches administering OXANO to an organism to scavenge free radicals generated through chemical means. There is nothing that would lead one of ordinary skill to modify the Samuni process such that the OXANO is administered to a mammal after exposing the mammal to ionizing radiation. It is not enough to identify each element of the claimed invention in the references since “identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention,” In re

Kotzab, 217 F.3d 1365, 1369, 5 USPQ2d 1313, 1316 (Fed. Cir. 2000). The issue is whether there is “some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant,” id. Examiner does not point anything in the references that teach or suggest administering the compound to a mammal after exposure to ionizing radiation. Therefore, the initial burden of establishing a prima facie case of obviousness has not been satisfied.

For the foregoing reasons, the rejection is reversed.

REVERSED

SHERMAN D. WINTERS
Administrative Patent Judge

WILLIAM F. SMITH
Administrative Patent Judge

HUBERT C. LORIN
Administrative Patent Judge

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